

WHAT IS CLAIMED IS:

sub A1

- ~~1. A method for treating food to reduce the level of microorganisms on the surface of said food and make it safe to eat, said method comprising treatment occurring just prior to consumption, comprising the step of contacting the surface of said food with an aqueous dilute treatment composition comprising, optionally, toxicologically-acceptable detergent surfactant; and toxicologically-acceptable basic buffer to provide a pH of greater than about 10.5 for a period of time in excess of about one half of a minute, the composition being essentially free of any material that adversely affects safety or palatability, so that said food does not need to be rinsed before consumption.~~
- ~~2. The method of Claim 1 wherein said aqueous dilute treatment composition comprises:~~
 - ~~(a) less than about 0.5% by weight of toxicologically-acceptable base-stable anionic detergent surfactant;~~
 - ~~(b) toxicologically-acceptable basic buffer selected from the group consisting of water soluble potassium and/or sodium and/or calcium hydroxides, ortho-phosphates, carbonates, and/or bicarbonates, to provide a pH of from about 10.5 to about 13~~
 - ~~(c) optionally, from about 0.0005% to about 3% by weight of calcium ion sequestrant selected from the group consisting of water soluble salts of polyphosphates, organic polycarboxylic acid, and mixtures thereof;~~
 - ~~(d) optionally, toxicologically-acceptable preservative;~~
 - ~~(e) optionally, toxicologically acceptable suds suppresser; and~~
 - ~~(f) the balance comprising an aqueous carrier selected from water and, optionally, containing a low level of low molecular weight, toxicologically-acceptable organic solvent.~~

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Sub A2 > 3 The method of Claim 2 wherein said aqueous treatment composition comprises:

- (a) less than about 0.2% by weight and sufficient to reduce the viscosity of said solution to less than about 50 cp., of toxicologically-acceptable base-stable anionic detergent surfactant;
- (b) toxicologically-acceptable basic buffer selected from the group consisting of water soluble potassium and/or sodium, hydroxides, ortho-phosphates, and/or carbonates, to provide a pH of from about 10.9 to about 12.5; and
- (c) optionally, from about 0.001% to about 1% by weight said calcium ion sequestrant, which is selected from the group consisting of sodium and/or tripolyphosphate, ethylenediaminetetraacetate, citrate, and mixtures thereof.

W 25.01 4. The method of Claim 2 wherein said aqueous treatment composition comprises:

- (a) less than about 0.1% by weight and sufficient to reduce the viscosity of said solution to less than about 10 cp., of toxicologically-acceptable base-stable sodium and/or potassium alkyl sulfate and/or C₈-14 soap;
- (b) toxicologically-acceptable basic buffer selected from the group consisting of water soluble potassium and/or sodium ortho-phosphates and/or carbonates, to provide a pH of from about 11.3 to about 12.3; and
- (c) optionally, from about 0.01% to about 0.5% by weight of salt of organic polycarboxylic acid.

5. The method of Claim 4 wherein said aqueous treatment composition comprises:

- (a) less than about 0.1% by weight and sufficient to reduce the viscosity of said solution to less than about 5 cp., of toxicologically-acceptable base-stable sodium and/or potassium alkyl sulfate and/or C₈-14 soap; and
- (c) optionally, from about 0.01% to about 0.2% by weight of sodium ethylenediaminetetraacetate.

6. The method of Claim 2 wherein said aqueous treatment composition comprises:

- (a) less than about 0.1% by weight and sufficient to reduce the viscosity of said solution to less than about 5 cp., of toxicologically-acceptable base-stable sodium and/or potassium alkyl sulfate and/or C₈-14 soap; and
- (c) optionally, from about 0.01% to about 1% by weight of sodium tripolyphosphate.

7. The method of Claim 1 wherein said treatment composition is made by diluting a concentrated composition with water containing microorganisms, the concentrate being used at a level of from about 0.1% to about 5% by weight of the dilute aqueous treatment composition.

8. An aqueous dilute treatment solution comprising:

- (a) less than about 0.5% by weight of toxicologically-acceptable base-stable anionic detergent surfactant;
- (b) toxicologically-acceptable basic buffer selected from the group consisting of water soluble potassium and/or sodium and/or calcium hydroxides, ortho-phosphates, carbonates, and/or bicarbonates, to provide a pH of from about 10.5 to about 13
- (c) optionally, from about 0.0005% to about 3% by weight of calcium ion chelant selected from the group consisting of sodium and/or potassium polyphosphate and/or organic polycarboxylate;
- (d) optionally, toxicologically-acceptable preservative;
- (e) optionally, toxicologically acceptable suds suppresser; and
- (f) the balance comprising an aqueous carrier selected from water and, optionally, containing a low level of low molecular weight, toxicologically-acceptable organic solvent.

9. A composition according to Claim 8 which comprises:

- (a) less than about 0.2% by weight and sufficient to reduce the viscosity of said solution to less than about 50 cp. of toxicologically-acceptable base-stable anionic detergent surfactant;
- (b) toxicologically-acceptable basic buffer selected from the group consisting of water soluble potassium and/or sodium, hydroxides, ortho-phosphates, and/or carbonates, to provide a pH of from about 10.9 to about 12.5; and
- (c) optionally, from about 0.001% to about 1% by weight said calcium ion sequestrant.

10. A composition according to Claim 9 which comprises:

- (a) less than about 0.1% by weight and sufficient to reduce the viscosity of said solution to less than about 10 cp., of toxicologically-acceptable base-stable sodium and/or potassium alkyl sulfate and/or C₈-14 soap;
- (b) toxicologically-acceptable basic buffer selected from the group consisting of water soluble potassium and/or sodium ortho-phosphates and/or carbonates, to provide a pH of from about 11.3 to about 12.3; and
- (c) optionally, from about 0.01% to about 0.5% by weight calcium ion sequestrant.

11. A composition according to Claim 10 which comprises:

- (a) less than about 0.1% by weight and sufficient to reduce the viscosity of said solution to less than about 5 cp., of toxicologically-acceptable base-stable sodium and/or potassium alkyl sulfate and/or C₈-14 soap; and
- (c) optionally, from about 0.01% to about 0.5% by weight of sodium tripolyphosphate and/or ethylenediaminetetraacetic acid.

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~~12.~~ A concentrated composition suitable for use in preparing dilute compositions for treating food at a basic pH above about 10.5, by diluting with water using from about 0.1% to about 5% of the concentrated composition, by weight of the dilute composition, said concentrated composition comprising:

- (a) from about 0.1% to about 50% by weight of toxicologically-acceptable detergent surfactant;
- (b) toxicologically-acceptable basic buffer, to provide a pH of from about 10.5 to about 13 in said dilute composition, but with low reserve alkalinity in said dilute composition to avoid damage to a human, the level of orthophosphate, when present, being from about 3% to about 60%, by weight of phosphoric acid equivalent;
- (c) optionally, from about 0.1% to about 35% by weight of toxicologically-acceptable calcium ion sequestrant to control calcium ions;
- (d) optionally, toxicologically-acceptable preservative;
- (e) optionally, toxicologically-acceptable suds suppresser; and
- (f) the balance comprising compatible, toxicologically-acceptable inert and/or minor ingredients.

~~13.~~ A composition according to ~~Claim 12~~ which is diluted to be from about 0.5% to about 2% by weight of said dilute treatment composition, and sufficient to reduce the viscosity of said dilute treatment composition to less than about 10 cp., comprising:

- (a) from about 0.5% to about 25% by weight of toxicologically-acceptable base-stable sodium and/or potassium alkyl sulfate and/or C₈-14 soap;
- (b) as the basic buffer, potassium and/or sodium and/or calcium hydroxide, orthophosphate, carbonate, and/or bicarbonate to have a pH in said dilute treatment composition of from about 10.9 to about 12.5; and
- (c) from about 1% to about 10% by weight of calcium ion sequestrant.

~~14.~~ A composition according to ~~Claim 13~~ wherein

- (a) said base-stable anionic surfactant is alkyl sulfate and/or C₈-14 soap;
- (b) said basic buffer provides a pH in said dilute treatment composition of from about 11.3 to about 12.3; and
- (c) there is from about 2% to about 20% of said calcium ion sequestrant, which is sodium and/or potassium tripolyphosphate and/or ethylenediaminetetraacetate.

Claim 15

15. A dilute treatment composition prepared by diluting from about 0.5% to about 2% by weight of the composition of Claim 12 with impure water to form a composition which has a viscosity less than about 50 centipoise under shear of greater than about 1000 sec⁻¹.

16. A composition according to Claim 15 which has a viscosity of less than about 10 centipoise.

17. A composition according to Claim 15 which has a viscosity of less than about 5 centipoise.

18. The composition of Claim 12 wherein said composition contains from about 0.001% to about 0.05% of an antioxidant.

19. A composition according to Claim 12 comprising only GRAS and/or food grade ingredients.

20. The composition of Claim 12 wherein said composition contains an effective amount of toxicologically-acceptable suds suppresser.

21. The composition of Claim 12 wherein said composition is formed using impure water.